UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,201	02/19/2004	Ken Museth	331326-287	6686

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EXAMINER
BROOME, SAID A

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 May 2008</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6,9-53 and 55</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-6,9-53 and 55</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20080711

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed 5/9/2008.

2. Claims 1, 15, 28, 29, 35, 37, 38, 42, 43 and 55 have been amended by the applicant.

3. Claims 7, 8 and 54 have been canceled.

4. Claims 2-6, 9-14, 16-27, 30-34, 36, 39-41 and 44-53 are original.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 10-25, 27-53 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 contains the symbol 'd', however no claim language has been provided to clearly define the symbol in claim 1, therefore claims 2-6, 10-25, 27-53 and 55 are rejected under 35 U.S.C. 112 second paragraph.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not

identical, but at least one examined application claim is not patentably distinct from the

reference claim(s) because the examined application claim is either anticipated by, or

would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d

1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d

2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re*

Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164

USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA

1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or

1.321(d) may be used to overcome an actual or provisional rejection based on a

nonstatutory double patenting ground provided the conflicting application or patent either

is shown to be commonly owned with this application, or claims an invention made as a

result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a

terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with

37 CFR 3.73(b).

Claims 1-6, 9-53 and 55 of the currently examined application 10/783,201 are

rejected on the ground of nonstatutory obviousness-type double patenting as being

unpatentable over claims 64-110 of U.S. Application 11/952,446. Although the

conflicting claims are not identical, they are not patentably distinct from each other

because it would have been obvious to one of ordinary skill in the art that the claim

language provided in claim 1 of the current application 10/783,201: "...γ *is a local*

geometric surface property; q is a geometric structure...", though it is a slight variation

because q is defined as a geometric primitive and γ is defined as a geometric property in

claims 64-65 and 109 of U.S. Application 11/952,446: claim 64: "...*q be a geometric*

primitive such as a ...surface..." and claim 65: "...*γ is a geometric property...*", the

claims are similar in scope and all the limitations of the current application 10/783,201

are anticipated by the claimed invention of U.S. Application 11/952,446, therefore claims

1-6, 9-53 and 55 of the currently examined application 10/783,201 are rejected on the

ground of nonstatutory obviousness-type double patenting as being unpatentable over

claims 64-110 of U.S. Application 11/952,446, in which it would have been obvious to

one skilled in the art at the time of invention to modify the teachings of application

10/783,201 to provide q is defined as a geometric primitive and γ is defined as a

geometric property, as provided in U.S. Application 11/952,446, because this

modification would enable efficient deformation of a level set surface through utilizing a

more clearly defined speed function, $F(x, n, \Phi) = D_q(d)C(\gamma)G(\gamma)$, in which q is defined as

a geometric primitive such as a point and γ is defined as a geometric property with any

order property of Φ.

     Table I listed below is provided to show which claims in the current application,

10/783,201, map to claims of U.S. Application 11/952,446. Table II is provided below to

show how the claimed limitations from independent claim 1 of the current application

10/783,201 maps to the claims 64, 65 and 109, which depend from and provide all the

limitations and teachings of claims 56, 62 and 63, of U.S. Application 11/952,446, as

shown in Table II.

TABLE 1

Current Application: 10/783,201	Claims 1, 2-6, 9-53, 55
U.S. Application: 11/952,446	Claims 64-65 & 109, 57-61, 64-109, 110

TABLE II

Current Application: 10/783,201 (Claim 1)	U.S. Application 11/952,446 (Claims 64, 65 and 109)
1. A method for editing a geometrical model with a level set modeling surface editor operator, comprising: defining a level set surface model having at least one deformation thereon to be modified;	56. A method for editing a geometrical model with a level set modeling surface editor operator, comprising: defining and forming a level set surface model having at least one deformation thereon to be modified;
performing a level set surface editing operation on a level set surface model, wherein said operation is defined by a level set surface editing operator and is free of edge connectivity data and	performing a level set surface editing operation on a formed level set surface model, wherein said operation is defined by a level set surface editing operator and is free of edge connectivity data;
wherein said performing a level set surface editing operator is defined as a speed function, said function comprising: a regional constraint function component; a filter function component; a surface properties defining function component	62. The method of claim 56 wherein said performing a level set surface editing operator is defined as a speed function, said function comprising: a regional constraint function component; a filter function component; a surface properties defining function component.
wherein said speed function is	63. The method of claim 62 wherein said

F(x, n, Φ) = D_q(d)C(γ)G(γ), wherein, D_q(d) is said regional constraint function component, C(γ) is said filter function component, G(γ) is said surface properties defining function component; γ is a local geometric surface property; q is a geometric structure; Φ is an iso-surface; and n is a normal of the surface at point x;	speed function is F(x, n, Φ) = D_q(d)C(γ)G(γ), wherein, D_q(d) is said regional constraint function component, C(γ) is said filter function component, G(γ) is said surface properties defining function components Φ is an iso-surface; and n is a normal of the surface at point x. 64. The method of claim 63 wherein said D_q(d) is further defined as having q be a geometric primitive such as a point, a line-segment, or surface and d be the distance from the level set surface of said level set surface model to q. 65. The method of claim 63 wherein said γ is a geometric property of the level set surface of said level set surface model, wherein γ is any order property of Φ.
wherein said operation modifies the at least one deformation and further including resetting a volumetric representation of said level model after said step of performing a level set surface editing operation to ensure that Φ is approximately equal to a shortest distance to a zero level set in a narrow band.	56. …wherein said operation modifies the at least one deformation. 109. The method of claim 63 further comprises: resetting the volumetric representation of said level model after said step of performing a level set surface editing operation to ensure that Φ is approximately equal to the shortest

	distance to the zero level set in the narrow band.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAID BROOME whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ulka Chauhan/   /Said Broome/
Supervisory Patent Examiner, Art Unit 2628   Examiner, Art Unit 2628